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### REMARKS

Claims 1, 3 through 8 and new Claims 9 through 11 are pending.

Claim 1 has been amended to recite the presence of sorbic acid in concentrations of greater than 0.5 up to 1.2 % by weight. Support for this amendment can be found in the application as filed, for example on Page 3, lines 11 through 16.

Claim 2 has been cancelled, as its subject matter has been incorporated into Claim 1.

Claim 3 has been amended to bring it into conformance with United States practice.

Claims 8 through 11 have been added to complete the record for examination and to highlight advantageous embodiments of the invention.

Claim 9 is directed to methods of using acid as growth-stabilizing addition to feedstuffs which includes adding an acid consisting essentially of sorbic acid to feedstuffs in a concentration of greater than 0.5 up to 1.2 % by weight. Support for Claim 9 can be found in the application as filed, for example on Page 3, lines 11 through 16.

Claim 10 is directed to advantageous aspects of such methods in which at least 80 % by weight of the sorbic acid has a particle size of less than 555 microns. Support for Claim 10 can be found in the application as filed, for example on Page 4, lines 21 through 26.

Claim 11 is directed to feedstuff compositions that include an acid consisting essentially of sorbic acid, which is present in the feedstuff in a concentration of greater than 0.5 to 1.2 % by weight and at least 80 % by weight of the sorbic acid having a particle

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size of less than 555 microns. Support for Claim 9 can be found in the application as filed, for example on Page 3, lines 11 through 16 and Page 4, lines 21 through 26.

Reexamination and reconsideration of this application, withdrawal of all rejections, and formal notification of the allowability of the pending claims are earnestly solicited in light of the remarks which follow.

**Rejection Under 35 USC § 112**

Claims 2 and 3 stand rejected under 35 USC § 112 for indefiniteness. Applicants have cancelled Claim 2. Applicants have deleted the parentheses from Claim 3, bringing it into conformance with United States practice. Accordingly, Applicants request withdrawal of this rejection.

**The Claimed Invention is Patentable in Light of the Art of Record**

Claims 1 through 4 are rejected as anticipated by HU 59290 ("HU 290"). Claims 1 and 4 are also rejected as anticipated by Bolduan et al, *Arch. Tierz* # 40, pages 95-100, 1997, ("Bolduan") and Freitag et al., *Feed Magazine*, 2/99, pages 49 – 57, ("Freitag"). Claims 1 through 3 are also rejected as anticipated by United States Patent 4,444,796 to Ueno et al. ("US 796"). Claims 1, 2 and 4 are further rejected as anticipated by Roth et al., *J. Animal and Feed Sci.*, pp. 25-33, 1998 ("Roth") and Kirchgessner et al., *J. Animal Physio. & Animal Nutrition*, pp. 235-242, 1995) ("Kirchgessner"). Claims 1, 2 and 7 are rejected as anticipated by Dilworth et al., *Poultry Sci.*, pp. 1445 - 1450, 1979 ("Dilworth"). Claims 1 through 7 stand rejected as being anticipated by WO 98/20749 ("WO 749"). Claims 1 through 8 stand rejected as anticipated by DE 3704175 ("DE 175"). Claims 1 through 5 and 7 stand rejected as anticipated by EP 275958 ("EP 958") (an equivalent of DE 3701567).

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Claims 1 and 4 through 8 stand rejected under as obvious over DE 2403203 ("DE 203"). Claim 8 stands rejected as obvious over WO 749.

It may be useful to consider the invention as recited in the claims before addressing the merits of the rejection. The claims recite methods of adding sorbic acid to feedstuffs as a growth-stabilizing additive. Sorbic acid is known as a feedstuff preservative, as evidenced by the cited art. Very recently, sorbic acid in high concentrations has been found to have nutritional activity for rearing piglets, as discussed in the Application-as-filed on Page 2, lines 11 through 25. Conventional wisdom to date has indicated that higher amounts of sorbic acid induced higher weight gains.

Surprisingly, Applicants determined that animal growth rate and feed conversion can be improved over conventional feedstuffs by including more moderate amounts of sorbic acid. For example, the addition of 1.0 wt % sorbic acid can increase the growth rate 128%. In contrast, studies performed heretofore have indicated that higher amounts of sorbic acid induce higher growth rates, such as a growth rate of 117 % for 1.8 wt% sorbic acid and 123 % for 2.4 % sorbic acid. It was thus altogether unexpected that significantly lower amounts of sorbic acid, e.g. 1.0 wt%, resulted in higher growth rates than provided by conventional dosages, e.g. 128 % growth rate versus 123 % growth rate.

Accordingly, the claims recite methods of adding sorbic acid to feedstuffs in an amount ranging from 0.5 up to 1.2 wt %, to impart growth-stabilization properties to the feedstuff. In particularly advantageous embodiments, the sorbic acid is added in amounts ranging from 0.5 to 1.0 wt %, as recited in Claim 3.

As noted in the application as filed on Page 2, lines 10 - 25, conventional wisdom teaches the use of higher amounts of sorbic acid to induce weight gain within piglets. Several of the cited references, Bolduan, Freitag, Roth, Kirchgessner, and HU 290, are directed to such conventional feed additives.

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Bolduan recommends 1.8 wt % sorbic acid in piglet feed. Freitag, Roth and Kirchgessner each note the inclusion of up to 2.4 wt% sorbic acid in feedstuff. Freitag expressly notes that "[l]ower concentrations do not show any performance-enhancing effects." (Freitag, Page 52). In contrast to the claimed invention, Roth and Kirchgessner each indicate that higher amounts of sorbic acid leads to increased weight gains. (Roth, Table 1 and Kirchgessner, Summary on Page 241).

Rather than rely upon a single acid, HU 290 is generally directed to acid mixtures which may be included in pig fodder to improve "yield". The acid mixture includes mono-carboxylic, di-carboxylic and phosphoric acids. The mono-carboxylic acid may be included within the fodder in amounts of up to 2.0 parts. The acid mixture is provided within a composition that further includes protein-rich meal base, calcium phosphate, chalk, vitamins, minerals and whole-mill powder.

Accordingly, neither Bolduan, Freitag, Roth, Kirchgessner or HU 290 teach or suggest the claimed invention, reciting sorbic acid present within feedstuff in a concentration of greater than 0.5 up to less than 1.2 % by weight, based on the weight of the feedstuff. In fact, the conventional wisdom teaches away from such moderate amounts of sorbic acid to induce weight gain within livestock. Hence Bolduan, Freitag, Roth, Kirchgessner or HU 290 most certainly do not teach or suggest the advantageous amounts of sorbic acid recited in Claim 3.

The remainder of the cited references are directed to preservative or antifungal compositions, not the recited methods of growth promotion.

US 796 is generally directed to special methods by which to add sorbic acid to pet foods. (Col. 3, lines 27 – 30). Commercially available sorbic acid is pulverized into small particulates having an average particle size of 20 microns. The pulverized sorbic acid is then formed into granules and the granules added to the pet food. (Col. 6, lines 56 – 64).

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The pet food compositions can include as little as 0.1 wt % sorbic acid. (Col. 6, lines 8 – 10).

Dilworth discloses the inclusion of from 0.02 to 0.06 % sorbic acid in poultry feed as an antifungal compound. (Abstract and Page 1450).

WO 749 is similarly directed to fungicide compositions. (Page 2, lines 31 – 35). The fungicide compositions of WO 749 may further be used to treat hooves. (Page 1, lines 12 – 14). The fungicidal compositions of WO 749 include lactic acid, one or more organic acids and trace elements. (Page 1, lines 7 – 10). Sorbic acid is noted as an optional ingredient within an acid mixture in amounts of up to 5 wt %. (Page 5, lines 3 – 5).

DE 175 discloses the use of from 0.005 to 0.5 wt % sorbic acid as a silage preservative.

EP 958 discloses a process by which to preserve fodder by adding an acid mixture that includes from 0.011 to 0.44 weight percent sorbic acid, along with an additional physiologically acceptable acid. In contrast to the opinion urged within the Office Action, it is the additional physiologically acceptable acid which may be present in amounts of up to 5.0 weight percent.

DE 203 notes that 2 % sorbic acid may be included within spent brewery grains as a preservative.

Accordingly, none of the references, considered either alone or in combination, teaches or suggests the recited method of using sorbic acid as a growth-stabilizing additive to feedstuffs, in which sorbic acid is added to the feedstuff in a concentration of greater than 0.5 up to less than 1.2 % by weight. The references thus most certainly do not teach such method including sorbic acid in the range from 0.5 to 1.0% by weight, as recited in Claim 3.

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Nor do the references teach or suggest methods of using acid as a growth-stabilizing additive to feedstuffs, which method includes adding acid consisting essentially of sorbic acid to feedstuffs in a concentration of greater than 0.5 up to less than 1.2 % by weight, as recited in Claim 9. And the references most certainly do not teach or suggest advantageous aspects of such embodiments in which at least 80 % by weight of the sorbic acid has a particle size of less than 555 microns, as recited in Claim 10. Accordingly, the references similarly do not teach or suggest the advantageous feedstuff compositions of Claim 11.

Consequently, Applicants respectfully submit that the claimed invention is patentable in light of the art of record, considered either alone or in combination.

### **CONCLUSION**

It is respectfully submitted that Applicants have made a significant and important contribution to the art, which is neither disclosed nor suggested in the art. It is believed that all of pending Claims 1 through 8 and new Claims 9 through 11 are now in condition for immediate allowance. It is requested that the Examiner telephone the undersigned if any questions remain to expedite examination of this application.



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It is not believed that fees for extensions of time or net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional fees are necessary to allow consideration of this paper, the fees are hereby authorized to be charged to Deposit Account No. 50-2193.

Respectfully submitted,



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